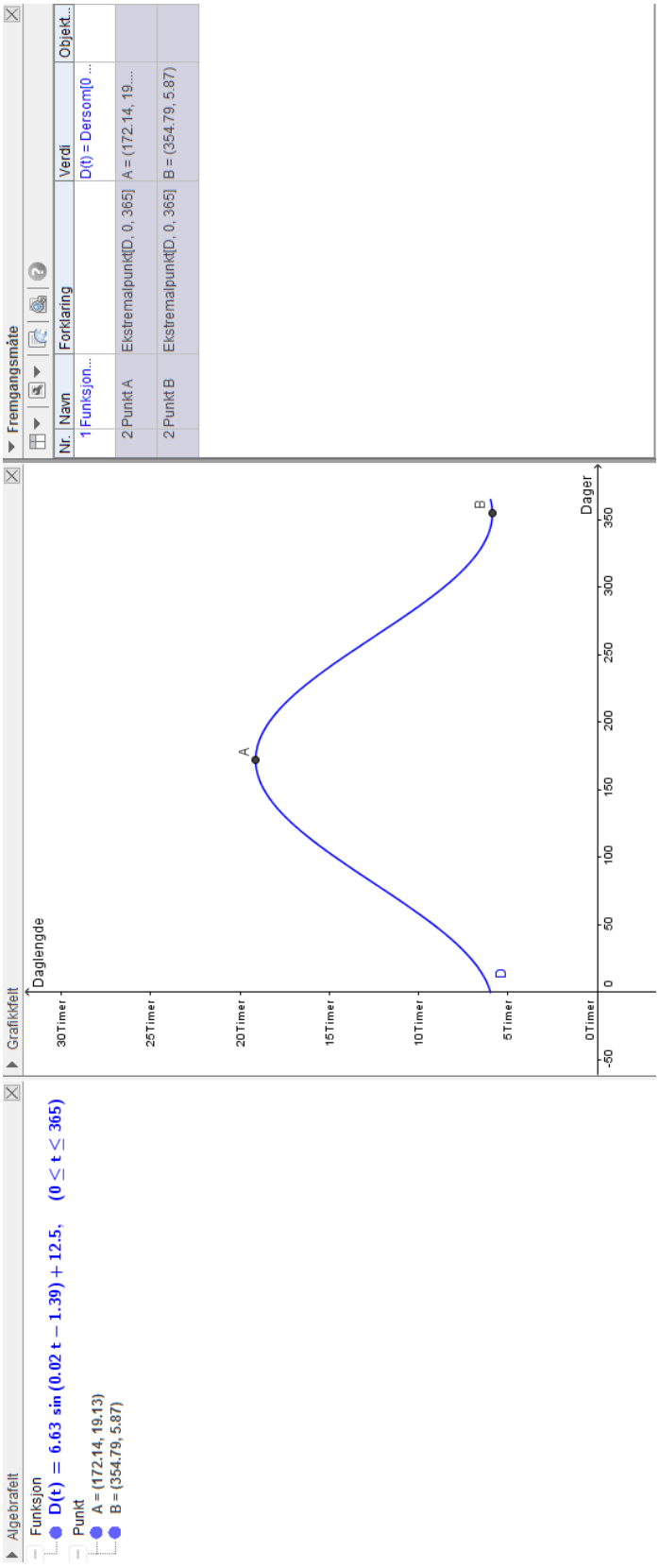
Oppg 1 b)

1	L(x):=1/cos(x)+2/sin(x) $\rightarrow \quad L(x) := \frac{2}{\sin(x)} + \frac{1}{\cos(x)}$
2	L'(x°)=0 NLøs: $\{x = -128.44, x = 51.56\}$
3	L(51.56) $\approx \quad 5.74$
4	5.74 -(2/sin(51.56)) $\approx \quad 3.66$
5	$\sqrt{(3.66^2-1^2)}$ $\approx \quad 3.52$

Oppg 2a og b)


Algebrafelt
Funksjon
D(t) = 6.63 sin (0.02 t − 1.39) + 12.5, (0 ≤ t ≤ 365)
Punkt
A = (172.14, 19.13)
B = (354.79, 5.87)
Grafikkfelt
Daglengde
30 Timer
25 Timer
20 Timer
15 Timer
10 Timer
5 Timer
0 Timer
A
B
D
-50
0
50
100
150
200
250
300
350
Dager
Fremgangsmåte
Nr.
Navn
Forklaring
Verdi
Objekt...
1 Funksjon...
D(t) = Dersom[0 ...
2 Punkt A
Ekstremalpunkt[D, 0, 365]
A = (172.14, 19....
2 Punkt B
Ekstremalpunkt[D, 0, 365]
B = (354.79, 5.87)

Oppg 2c og d)

1	D(t):=6.63sin(0.0172t - 1.39) + 12.5 → $D(t) := \frac{663}{100} \sin\left(\frac{43}{2500} t - \frac{139}{100}\right) + \frac{25}{2}$
2	g(t):=14 → $g(t) := 14$
3	D=g NLøs: $\{t = 94.08, t = 250.2\}$
4	D''(t)=0,t=1 NLøs: $\{t = 80.81\}$
5	D'(80,81) ≈ 0.11

Oppg 3a)

f(x):=x²

→ $f(x) := x^2$

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g(x):=Linje[(a,f(a)), (b,f(b))]

→ $g(x) := -a\,b + a\,x + b\,x$

T:=IntegralMellom[g, f, a, b]

→ $T := \frac{-a^3 + 3\,a^2\,b - 3\,a\,b^2 + b^3}{6}$

(-a³ + 3a² b - 3a b² + b³) / 6

Faktoriser: $-\frac{(a - b)^3}{6}$

Oppg 3b)

1	A:=(a,a²) → $A := (a, a^2)$
2	B:=(b,b²) → $B := (b, b^2)$
3	C:=(c,c²) ByttUt, c=(a+b)/2: $C := \left(\frac{a+b}{2}, \frac{a^2+2ab+b^2}{4}\right)$
4	AB:=Vektor[A, B] → $AB := \begin{pmatrix} b-a \\ b^2-a^2 \end{pmatrix}$
5	AC:=Vektor[A, C] → $AC := \begin{pmatrix} \frac{a+b}{2}-a \\ \frac{a^2+2ab+b^2}{4}-a^2 \end{pmatrix}$
6	S:=1/2*(AB⊗AC) → $S := \frac{1}{8}a^3 - \frac{1}{8}b^3 + \frac{3}{8}ab^2 - \frac{3}{8}a^2b$
7	S Faktoriser: $\frac{(a-b)^3}{8}$

Oppg 3c)

1	T:=(-(a - b)³) / 6 → $T := -\frac{1}{6}(a-b)^3$
2	S:=(b-a)³/8 → $S := \frac{1}{8}(-a+b)^3$
3	T/S → $\frac{4}{3}$

Oppg 4)

LøsODE[y'=0.0006*(1200-y), y, t,(0,1)]

→ $y = -1199\, e^{-3 \cdot \frac{t}{5000}} + 1200$

600 = -1199 *e*^(-3 t / 5000) + 1200

NLøs: $\{t = 1153.86\}$